1848MNRAS...8..197L

11^{h} 35^{m} it had become occulted. At 11^{h} 5^{m} I observed *Tethys* just emerging from behind the ball, and noticed that he emerged evidently *south* of the line joining the other satellites. As the present position of the ring requires that, if revolving in its plane, the satellite should appear rather to the *north* on its emergence, this fact seems to afford some evidence that the satellite does not revolve precisely in the plane of the ring. Moreover, at 11^{h} 50^{m}, when *Tethys* and *Mimas* formed an exquisitely delicate double-star, *Tethys* was still south of *Mimas*, although, as *Tethys* was receding from the planet and *Mimas* approaching it, the reverse ought to have been the case if the former really revolves in the plane of the ring.

" At 10^{h} 5^{m} this evening (Sept. 16) *Mimas* was, as nearly as could be estimated, at his greatest elongation eastward ; and on the 16th October, 1847, at 8^{h} 35^{m}, I observed him at or very near his greatest elongation westward. The interval elapsing amounts to 336·045 days; and supposing him to have made in that time 356·5 revolutions, 22^{h} 37^{m} 22^{s}·6 will be the period of one revolution."

Extract of a Letter from Mr. Lassell.

" I am happy to tell you that I have at length brought my polishing machine to do all that I ever hoped or purposed it should do. I had previously obtained very good surfaces with it, but they were obtained with some anxiety and uncertainty. I wished to be able to repolish a known good surface without hurting it, as well as to turn a bad one into a good one with certainty and expedition. This, I am happy to say, I can now do; and by certain rules, varying with the proportion of the focal length to the aperture, I can produce a parabolic surface which shall have the same focus in every part of its surface to the hundredth of an inch. The improvement in regularity of curve is not less than in the truth of its general form. I am about to make some experiments on the further shortening of focus, viz. a 12-inch metal of 7-feet focus, more, however, as a curiosity than for utility." *

FLORA.

Cambridge. Northumberland Equatoreal. (Prof. Challis.)

1848.	Greenwich M.T. h m s	R.A. h m s	Obs^{d}—Cal^{d} s	N.P.D. ° ′ ″	Obs^{d}—Cal^{d} ″	No. of Comps. R.A.	No. of Comps. N.P.D.	Star.
May 1	8 54 40·7	6 42 47·63	−0·20	65 46 2·1	−15·0	7	7	*a*
2	9 1 39·2	44 49·66	−0·66	46 45·7	17·6	6	6	*b*
3	8 43 47·9	46 49·96	−0·92	47 39·6	15·6	10	6	*b*
4	9 18 52·5	48 55·24	−0·85	48 43·3	13·2	6	6	*b*
5	8 56 24·2	50 56·15	−0·45	49 39·3	23·0	3	2	*c*
	9 11 29·2	57·83	−0·06	40·6	22·5	5	5	*d*
6	9 16 48·6	6 53 0·99	+0·11	65 51 5·0	−11·2	7	7	*e*

* Mr. Lassell is preparing an account of his polishing machine and methods of grinding specula, &c. to be laid before the Society.

1848MNRAS...8..197L

1848.	Greenwich M.T. h m s	R.A. h m s	Obsd—Cald s	N.P.D. ° ′ ″	Obsd—Cald ″	No. of Comps. R.A.	No. of Comps. N.P.D.	Star.
May 8	10 6 57·5	6 57 10·18	−0·46	65 53 52·6	−12·2	1	1	*f*
	10 12 8·2	10·39	−0·69	50·7	14·4	4	4	*g*
9	9 31 53·1	6 59 10·31	−0·25	55 19·1	16·8	7	7	*h*
10	9 21 2·4	7 1 12·75	+0·11	57 7·6	7·4	6	6	*i*
11	9 7 5·7	3 14·84	+0·28	65 58 48·1	12·4	7	7	*j*
12	9 43 41·3	5 20·95	+0·09	66 0 49·1	7·6	5	5	*i*
13	9 47 57·3	7 23·96	−0·53	2 49·3	8·0	6	6	*k*
16	9 59 0·7	13 35·31	−0·26	9 24·7	14·4	6	6	*l*
17	9 39 8·6	15 36·58	−0·76	11 44·6	19·2	7	6	*l*
22	9 30 13·6	25 53·52	−0·79	25 45·3	7·0	6	5	*m*
23	9 28 55·8	27 57·47	−0·31	28 48·4	11·9	6	6	*m*
27	9 41 48·1	7 36 13·78	+0·62	66 42 25·3	− 4·6	4	4	*n*

"The comparisons are made with Mr. Hind's Ephemeris, *Monthly Notices*, vol. viii. No. 3.

" The observed places are corrected for refraction and parallax, and in the comparison with the calculated places aberration is taken into account.

" The following are the authorities for the adopted mean R.A. and N.P.D. of the stars :—

a = H.C. 13279
b = — 13313
c = — 13497
e = B.Z. 348 : 6h 51m 45s

f = B.A.C. 2299
h = H.C. 13804
i = B.A.C. 2350
j = H.C. 13856

k = H.C. 14030
l = B.A.C. 2434
m = H.C. 14722
n = — 15112

" The adopted apparent places of the remaining two stars, which were determined by equatoreal comparisons, are the following :—

Star.	Apparent R.A. h m s	Apparent N.P.D. ° ′ ″	By comparison with
d	6 48 0·24	65 52 10·8	B.A.C. 2299
g	6 55 56·89	66 3 5·8	— —

" In the comparison of the Cambridge Equatoreal Observations of *Flora* in the *Monthly Notice*, No. 8, with Mr. Hind's Ephemeris, the correction for aberration was inadvertently applied with the wrong sign. When this mistake is corrected, the excesses of the observed above the calculated N.P.D. will stand as follows :—

	″		″		″		″
Feb. 16	− 8·2	March 3	− 8·6	March 28	−12·4	April 19	−16·0
	− 2·1	10	−11·9	29	+ 0·2		−15·2
	− 1·9	14	−18·2	April 1	− 6·1	28	− 9·2
17	+ 1·2	18	−21·0	6	− 8·7		−13·2
	−12·0	20	−14·2	10	+ 1·7	29	−10·0
18	−10·7		−17·9	14	−13·8		−12·6
27	− 7·6	21	− 8·2	17	−11·1		
28	− 3·8		−21·7		−10·4		

1848MNRAS...8..197L

MAKERSTOUN. Equatoreal. (Sir T. Brisbane and Mr. J. Welsh.)

Date. 1848.	Greenwich Mean Time.	R.A.	N.P.D.	Ephem. — Obs. R.A.	Ephem. — Obs. N.P.D.	No. of Comps.	Star of Comparison.
	h m s	h m s	° ′ ″	s	″		
Feb. 10	8 21 0	4 26 37·60	70 14 44·6	+0·68	−0·9	13	Taylor, 1598
	8 22 17	37·73	46·3	0·60	−2·9	8	B.A.C. 1417
11	7 42 17	27 38·50	70 8 47·3	0·58	−0·3	12	Taylor, 1598
17	9 22 43	34 29·21	69 32 23·5	0·75	−5·2	9	*a*
25	8 7 13	44 41·64	68 46 47·4	0·95	−0·3	1	B.A.C. 1551
	8 12 34	42·09	45·8	0·81	+0·1	2	*b*
26	7 5 40	4 46 0·86	68 41 29·5	0·71	1·4	10	*b*
	7 17 9	1·67	27·7	0·56	0·6	1	B.A.C. 1551
Mar. 13	9 26 1	5 10 32·82	...	(1·06)	...	9	*c*
	9 34 42	...	67 21 42·9	...	(2·9)	5	*c*
21	8 28 39	24 5·32	66 49 46·7	0·77	3·4	4	B.A.C. 1774
	8 34 26	5·68	46·3	0·83	2·9	9	*d*
24	7 54 26	29 20·54	39 16·2	0·74	4·9	10	B.A.C. 1774
28	8 55 1	...	26 27·7		0·5	4	*e*
	9 2 37	36 38·06	...	0·89	...	12	*e*
29	7 56 23	38 22·72	23 34·6	0·83	4·3	8	*e*
31	8 46 5	...	17 54·4	...	3·5	4	*f*
	9 0 1	42 8·48	...	0·95	...	7	*f*
April 1	8 17 40	43 57·03	...	0·84	...	11	*g*
	8 28 34	...	15 18·5	...	3·0	4	*g*
	8 35 57	...	17·7	..	3·0	4	*h*
	8 44 44	58·98	...	0·61	...	8	*h*
3	8 11 12	47 40·45	10 22·8	0·81	2·1	5	*i*
5	8 25 38	51 27·59	...	1·01	...	15	*k*
	8 27 4	...	66 5 44·0	...	5·8	5	*k*
8	9 7 34	5 57 13·78	65 59 38·3	1·19	5·7	1	*l*
10	9 1 53	...	56 7·8	...	7·1	5	*m*
	9 7 52	6 1 4·94	...	0·89	...	12	*m*
11	8 48 25	2 59·29	...	1·00	...	9	*m*
	8 55 0	...	54 33·0	...	7·3	5	*m*
14	8 26 35	...	50 26·0	...	9·8	4	B.A.C. 2011
	8 43 23	8 49·35	...	0·92	...	9	— —
17	8 47 4	...	47 17·4	...	10·9	1	— —
	9 0 2	...	18·0	...	9·8	2	*n*
	9 8 17	14 45·21	...	0·61	...	3	*n*
	9 13 1	45·59	...	0·92	...	2	B.A.C. 2011
29	9 20 17	...	65 44 58·9	...	+7·4	7	*o*
	9 25 45	6 38 46·77	...	+0·38	...	20	*o*
May 8	10 5 7	6 57 9·45	...	...	...	9	*p*
	10 27 0	...	54 1·8	...	...	2	*p*
10	10 11 38	...	65 57 7·4	...	...	4	*p*
	10 18 26	7 1 16·75	...	...	...	7	*p*

1848MNRAS...8..197L

"The observations have been corrected for refraction and parallax. The corrections for aberration have been applied to Mr. Hind's Ephemeris (*Monthly Notices*, January 14), and the observed places compared with it.

"N.B. The observations of *Flora* at Makerstoun, printed in the *Monthly Notice* for March last, were not corrected for aberration previously to being compared with the Ephemeris.

"The mean places of the following stars have been obtained by comparison with known stars; when two or more comparisons have been obtained, they may be considered as tolerably correct. The place of the star *c* has been roughly *assumed* from the comparison with the planet.

Star.		Mag.	Mean R.A. 1848·0. h m s	Mean N.P.D. 1848·0. ° ′ ″	No. of Comps.	Star of Comparison.
a	H.C. 8844	7½	4 34 7·51	69 39 57·7	1	B.A.C. 1570
b	H.C. 9228,9		4 47 10·72	68 40 29·9	2	— 1551
c		8½	5 8 22·00::	67 20 35·0::		approximate.
d		8	5 24 20·00	66 46 19·1	3	B.A.C. 1774
e	H.C. 10844	8	5 36 42·62	66 19 17·0	5	— 1951
f		8	5 39 22·53	66 16 27·0	3	— 1951
g		9	5 43 46·65	66 18 58·7	3	— 1951
h		9	5 43 52·41	66 20 53·5	5	*g*
i		8½	5 46 43·04	66 9 26·7	1	B.A.C. 1951
k		8	5 52 52·02	66 4 44·0	3	— 2011
l	H.C. 11592	7½	5 58 54·02	66 7 32·2	1	— 2011
m	H.C. 11796	8	6 4 51·37	65 58 38·6	4	— 2011
n		8½	6 13 58·37	65 48 3·8	2	— 2011
o		8	6 38 41·83	65 41 22·6	3	— 2299
p		8	6 57 59·78:	65 52 13·3:	1	— 2299

All the observations were made by Mr. John Welsh.

"The star *m* has been observed by Taylor (No. 2360 of *Madras General Catalogue*); his R.A. reduced by precession alone to 1848·0 is $6^h\,4^m\,51^s{\cdot}80$, and, allowing the proper motion assigned by him, $6^h\,4^m\,52^s{\cdot}07$. There is another star about 2′ south of this, viz. Taylor, 2361 = Piazzi, vi. 14; two comparisons with B.A.C. 2011 give its R.A. for 1848·0, $6^h\,4^m\,51^s{\cdot}65$. Taylor's is $6^h\,4^m\,53^s{\cdot}22$; and allowing his proper motion, it is $6^h\,4^m\,53^s{\cdot}84$. If Taylor's R.A. is accurate, there seems to be something peculiar about the proper motions of these two stars. The place of the star *m*, both in R.A. and N.P.D., deduced from comparison with B.A.C. 2011, has been used (in the mean time) in preference to Taylor's; the N.P.D. agrees pretty well with Taylor."*

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* The two stars mentioned by Mr. Welsh are H.C. 11796, 11797 = Piazzi, vi. 13, 14. The differences of right ascension between the two stars, according to these authorities, agree with that found by Mr. Welsh, so that there is no probability of any *relative* proper motion. There is an error of $+1^s$ in the right ascension of Taylor 2361. The star *m* must be reobserved to decide with respect to its correct right ascension.